401 KAR 59:185. New solvent metal cleaning equipment.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division for Air Quality

Relates to: KRS 224.20-100, 224.20-110, 224.20-120
Pursuant to: KRS 224.10-100
Necessity and Function: KRS 224.10-100 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compounds from new solvent metal cleaning equipment.

Section 1. Definitions.
As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means cold cleaners, open top vapor degreasers, and conveyorized degreasers which utilize volatile organic compounds(VOCs) to remove soluble impurities from metal surfaces.

(2) "Classification date" means June 29, 1979.

(3) "Freeboard height" means, for a cold cleaner, the distance from the liquid solvent level in the degreaser tank to the lip of the tank. For a vapor degreaser it is the distance from the solvent vapor level in the tank to the lip of the tank.

(4) "Freeboard ratio" means the freeboard height divided by the width of the degreaser.

(5) "Refrigerated chiller" means a second set of freeboard condenser coils located slightly above the primary condenser coils which create a cold air blanket above the vapor zone.

(6) "Cold cleaner" means a batch-loaded degreaser whose solvent is kept below its boiling point.

(7) "Open top vapor degreaser" means a batch-loaded degreaser whose solvent is heated to its boiling point creating a solvent vapor zone.

(8) "Conveyorized degreasers" means a degreaser which is continuously loaded by means of a conveyer system. Its solvent may be boiling or non-boiling.

(9) "Solvent" means, in this regulation,VOCs.

Section 2. Applicability.
(1) This regulation shall apply to:

(a) Each affected facility commenced on or after the classification date defined in Section 1 of this regulation and located in a county or portion of a county designated as nonattainment for ozone in 401 KAR 51:010, for any classification except marginal ; and
(b) Each affected facility commenced on or after the effective date of this regulation which is part of a major source located in a county or portion of a county designated attainment or marginal nonattainment for ozone in 401 KAR 51:010.

(2) Each affected facility commenced on or after the classification date defined in Section 1 of this regulation but prior to the effective date of this regulation which is part of a major source located in a county or portion of a county designated attainment or marginally nonattainment for ozone in 401 KAR 51:010 shall be exempt from this regulation except that control devices and procedures required at the time it commenced shall continue to be operated and maintained.

Section 3. Standard for VOCs.
The owner or operator of an affected facility to which this regulation applies shall install, maintain and operate the control equipment and observe at all times the operating requirements which apply to this type of degreaser as specified in Sections 4,5, and 6 of this regulation.

Section 4. Cold Cleaners.

(1) Control equipment:
(a) The cleaner shall be equipped with a cover. If the solvent volatility is greater than fifteen (15) mm Hg measured at 100 o F or if the solvent is agitated or heated, then the cover shall be designed so that it can be easily operated with one (1) hand.

(b) The cleaner shall be equipped with a drainage facility so that solvent that drains off parts removed from the cleaner will return to the cleaner. If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100 oF then the drainage facility shall be internal so that parts are enclosed under the cover while draining. The drainage facility may be external if the department determines that an internal type cannot fit into the cleaning system.

(c) A permanent, conspicuous label, summarizing the operating requirements specified in subsection (2) of this section shall be installed on or near the cleaner.

(d) If used, the solvent spray shall be a fluid stream (not a fine, atomized or shower type spray) and at a pressure which does not cause excessive splashing.

(e) If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F or if the solvent is heated above 120°F, then one (1) of the following control devices shall be used:
1. Freeboard that gives a freeboard ratio greater than or equal to 0.7.

2. Water cover (solvent shall be insoluble in and heavier than water).

3. Other systems of equivalent control, such as a refrigerated chiller or carbon adsorption.

(2) Operating requirements:
(a) Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in covered containers.

(b) Degreaser cover shall be closed if not handling parts in the cleaner.

(c) Cleaned parts shall be drained until dripping ceases (fifteen (15) seconds is usually necessary).

Section 5. Open Top Vapor Degreasers.

(1) Control equipment:

(a) The degreaser shall be equipped with a cover that can be opened and closed easily without disturbing the vapor zone.

(b) The degreaser shall be equipped with the following safety switches:

1. Condenser flow switch and thermostat to shut off sump heat if condenser coolant either is not circulating or is too warm.

2. Spray safety switch to shut off spray pump if the vapor level drops more than four (4) inches below the bottom condenser coil in order to prevent spraying above the vapor level.

3. Vapor level control thermostat which shuts off sump heat if the vapor zone rises above the design level.

4. Equivalent safety systems as approved on a case-by-case basis by the department.

(c) The degreaser shall be equipped with at least one (1) of the following major control devices:

1. Freeboard ratio greater than or equal to 0.75, and if the degreaser opening is greater than ten (10) square feet, the cover shall be powered or mechanically assisted.

2. Refrigerated chiller.

3. Enclosed design so that the cover or door opens only if the dry part is actually entering or exiting the degreaser.

4. Carbon adsorption system, with ventilation greater than or equal to fifty (50) cfm/square foot of air-vapor interface area (if cover is open), and exhausting less than twenty-five (25) ppm by volume solvent averaged over one (1) complete adsorption cycle.

5. Control system demonstrated to have control efficiency equivalent to or better than any of the above.

(d) A permanent, conspicuous label, summarizing the operating procedures specified in subsection (2) of this section shall be installed on or near the degreaser.

(2) Operating requirements:

(a) The cover shall be closed at all times unless processing work loads through the degreaser.

(b) Solvent carry-out shall e minimized by the following measures:

1. Parts shall be racked so that entrainment of solvent is avoided and full drainage is accomplished.

2. Parts shall be moved in and out of the degreaser at a vertical speed less than eleven (11) ft./min.

3. Work load in the vapor zone shall be degreased until condensation ceases (thirty (30) seconds or more is usually necessary).

4. Any pools of solvent shall be tipped out on the cleaned

parts before removal.

5. Parts shall be allowed to dry within the degreaser above the vapor zone until visually dry (fifteen(15) seconds is usually necessary).

(c) Porous or absorbent materials such as cloth, leather, wood, or rope shall not be degreased.

(d) Work loads shall not occupy more than half of the degreaser's open top area.

(e) Spray above the vapor level shall not be allowed.

(f) Solvent leaks shall be repaired immediately or the degreaser shall be shut down.

(g) Waste solvent shall not be disposed of or transferred to another party so that greater than twenty(20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in closed containers.

(h) Exhaust ventilation shall not exceed sixty-five (65) cfm per square foot of degreaser area unless necessary to meet OSHA requirements or control device requirements. Ventilation fans shall not be used near the degreaser opening.

(I) Water shall not be visually detectable in the solvent exiting the water separator.

Section 6. Conveyorized Degreasers.

(1) Control equipment:

(a) A conveyorized degreaser shall be enclosed except for work load entrances and exits.

(b) The degreaser shall be equipped with a drying tunnel or another means such as rotating baskets sufficient to prevent cleaned parts from carrying out solvent liquid or vapor.

(c) Minimized openings: entrances and exits shall silhouette work loads so that the average clearance between the largest parts and the edge of the degreaser opening is either less than four (4) inches or less than ten (10) percent of the width of the opening.

(d) Down-time covers: the degreasers shall be equipped with covers for closing off the entrance and exit during shutdown hours.

(e) If the degreaser has an air-solvent interface area or an air-vapor interface area equal to or greater than twenty (20) square feet, it shall be equipped with at least one (1) of the following major control devices:

1. Refrigerated chiller.

2. Carbon adsorption system with ventilation greater than or equal to fifty (50) cfm/square foot of air-vapor interface area (if down-time covers are open) and exhausting less than twenty- five (25) ppm of solvent by volume averaged over a complete adsorption cycle.

3. A system demonstrated to have a control efficiency equivalent to or better than either of the above.

(f) If the degreaser is a vapor type, it shall be equipped with the following safety switches:

1. Condenser flow switch and thermostat which will shut off the sump heat if coolant is either not circulating or is too warm.

2. Spray safety switch and thermostat which will shut off the spray pump or conveyer if the vapor level drops more than four (4) inches below the bottom condenser coil in order to prevent spraying above the vapor level.

3. Vapor level control thermostat which will shut off sump heat if the vapor level rises above the design level.

4. Equivalent safety systems as approved on a case-by-case basis by the department.

(g) A permanent, conspicuous label, summarizing the operating procedures specified in subsection (2) of this section shall be installed on or near the degreaser.

(2) Operating requirements:

(a) Exhaust ventilation shall not exceed sixty-five (65) cfm per square foot of degreaser opening unless necessary to meet OSHA requirements or control device requirements. Work place fans shall not be used near the degreaser opening.

(b) Solvent carry-out shall be minimized by the following measures:

1. Parts shall be racked so that entrainment of solvent is avoided and full drainage is accomplished.

2. Vertical conveyer speed shall be maintained at less than eleven (11) ft/min.

(c) Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in closed containers.

(d) Solvent leaks shall be repaired immediately or the degreaser shut down.

(e) Water shall not be visually detectable in the solvent exiting the water separator.

(f) Down-time covers shall be placed over entrances and exits of the degreaser immediately after the conveyer and exhaust are shut down and removed just before they are started up.

Section 7. Compliance Timetable

(1) Affected facilities which were subject to this regulation as in effect on June 29, 1979, shall have achieved final compliance upon startup.

(2) The owner or operator of an affected facility that, on or after the effective date of this regulation, becomes subject to this regulation for any reason other than construction, modification, or reconstruction shall be required to complete the following:

(a) A final control plan for achieving compliance with this regulation shall be submitted no later than three (3) months after the date the affected facility becomes subject to this regulation.

(b) The control sstem contract shall be awarded no later than five (5) months after the date the affected facility becomes subject to this regulation.

(c) On-site construction or installation of emission control equipment shall be initiated no later than seven (7) months after the date the affected facility becomes subject to this regulation.

(d) On-site construction or installation of emmision control equipment shall be completed no later than eleven (11) months aftr the date the affected facility ecomes subject to this regulation.

(e) Final compliance shall be achieved no later than twelve (12) months after the date affected facility becomes subject to this regulation.

(f) If an affected facility becomes subject to this regulation because it is located in a county previously designated nonurban nonattainment or redesignated in 401 KAR 51:010 after November 15, 1990, final compliance may be extended to May 31, 1995, and the schedule in paragraphs (a) through (d) of this subsection adjusted by the cabinet.

Section 8. Exemptions.
Any cold cleaners shall be exempt from the provisions of Section 4 if the following criteria are met:

(1) The cold cleaner shall have a remote solvent reservoir;

(2) The solvent used in the cold cleaner shall not have a vapor pressure that exceeds thirty-three (33) mm Hg measured at 100oF or be heated above 120oF;

(3) The sink-like work area shall have an open drain area less than 100 sq. cm.; and

(4) Evidence shall be provided that waste solvent shall be stored or properly disposed of with minimal loss due to evaporation.

Effective Date: January 7, 1981

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg	JUN 29, 1979	JAN 25, 1980	45 FR 6092
1st Revision	JAN 19, 1981	AUG 07, 1981	46 FR 40188
2nd Revision	OCT 20, 1992	JUN 23, 1994	59 FR 32343